

Impact of clinical pharmacist on home health care patients in hail region

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Abstract

The primary aim of this research is to assess how the involvement of clinical pharmacists can influence home health care patient's outcomes, including medication management, adherence to prescribed therapies, and overall patient satisfaction. To achieve this, the study adopted a descriptive and quantitative approach. Data gathered through an electronic questionnaire specifically targeted at home health care patients, totaling 112 individuals, aiming to capture their experiences and perceptions regarding the contributions of clinical pharmacists to their health care. This questionnaire included questions that focus on the effectiveness, accessibility, and patient-centered care provided by clinical pharmacists. The collected data then systematically analyzed using the Statistical Package for the Social Sciences (SPSS) application, allowing for the identification of trends, correlations, and potential areas for improvement in clinical pharmacy services. The study finally concluded that.

Keywords: Pharmacy; Home Care; Clinical Pharmacy; Patients; Medical; Hail Region

1. Introduction

The progression of scientific and technological knowledge, along with socio-economic and political transformations, demographic expansion, and the enhancement of Health Systems, has resulted in the evolution of the pharmaceutical profession. This expansion has transpired across multiple sectors, including community pharmacy, hospital pharmacy, the pharmaceutical business, regulatory oversight, drug management, and academic pursuits. Clinical pharmacists are healthcare specialists that specialize in optimizing medication use to improve patient outcomes. (Foubert et al. 2019)

These individuals can also be referred to as "home healthcare pharmacists," acknowledging their role in providing home health care services. Their duties encompass evaluating medication regimens, tracking patient reactions to treatment, offering drug therapy recommendations, and ensuring the safe and efficient use of medications. In addition, they have a crucial function in instructing patients and healthcare practitioners on the correct methods of medication management. The pharmacist serves as a mediator between the physician and the patient, offering both medications and complimentary medical guidance without requiring a scheduled visit. Pharmacists, despite being the initial point of contact for certain healthcare customers, are often overlooked and disregarded in current healthcare regulations, making them nearly "invisible". (Dunn, et al. 2015)

Pharmacists are endeavoring to enhance their involvement in clinical pharmacy to further their career. Their primary objective was to cultivate a more robust relationship with the patient and enhance their professionalism by assuming the critical responsibility of providing suitable counsel in decision-making. To prevent, safeguard, and improve the patient's health, the pharmacist must deliver clear and intelligible information about the correct usage of medication and any possible contraindications. This guarantees that the patient receives maximum benefit from the prescription,

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showcasing the pharmacist's problem-solving proficiency. Medication specialists can enhance safe opioid usage by educating patients about the related hazards, including proper medication disposal and the repercussions of sharing prescriptions. (Niznik et al. 2018)

Clinical pharmacists have a crucial role in improving medication adherence, which in turn reduces illness, death, and healthcare expenses. Their responsibilities have greatly expanded in recent years, especially in the area of home health care. In this field, their knowledge in medication management and patient-centered care can significantly influence health outcomes. Home health care has become an essential service for managing patients with chronic diseases and complex medical demands, especially among senior populations. The increasing demand for home-based care necessitates the incorporation of specialist healthcare experts, such as clinical pharmacists, to a greater extent. Clinical pharmacists are vital in optimizing pharmaceutical use, ensuring adherence to prescribed therapies, and reducing medication-related problems. These roles are key for improving patient outcomes in home care settings.

Nevertheless, although clinical pharmacists are increasingly acknowledged for their importance in different healthcare environments, there is a scarcity of data about their precise influence in the home health care industry. (Elliott, et al. 2017)

This study aims to fill this need by examining the involvement of clinical pharmacists in providing home health care for patients in the Hail region. The objective is to investigate the ways in which pharmacist interventions can improve patient care, decrease medication mistakes, boost adherence, and positively impact overall health outcomes. Gaining a comprehensive understanding of these consequences is crucial for the development of evidence-based strategies aimed at enhancing the quality of care delivered to home health care patients in the region.

1.1. Research Problem

Home health care has emerged as an essential element of patient treatment, particularly for persons with chronic illnesses, the elderly, and those in need of long-term care. Efficient medication management in these environments is crucial for enhancing patient outcomes, preventing adverse drug events, and decreasing hospital readmissions. Nevertheless, in numerous instances, medication-related complications such as polypharmacy, suboptimal adherence, and drug interactions are insufficiently managed, resulting in adverse health outcomes. The participation of clinical pharmacists in home health care presents a prospective remedy through their proficiency in drug administration; nonetheless, the degree of their influence on patient outcomes remains inadequately defined. This study seeks to elucidate the function of clinical pharmacists in home health care by analyzing their impact on patient outcomes, medication adherence, and quality of life. This study aims to investigate the impact of clinical pharmacist interventions on mitigating medication-related issues and enhancing the overall healthcare experience for home health care patients.

1.2. Research Objectives

- Evaluate the role of clinical pharmacists in improving patient outcomes in home health care in the Hail region.
- Analyze the impact of pharmacist interventions on medication adherence and the reduction of medication errors and hospital readmissions.
- Measure the effect of pharmacist care on the overall health and quality of life of home health care patients.

1.3. Research Importance

The Hail region, similar to numerous other locales, is experiencing a growing need for home health care services attributed to its aging demographic and the escalating prevalence of chronic illnesses. Effective management of drugs in home-based care is crucial for enhancing patient outcomes and minimizing hospitalizations. Nonetheless, issues such as polypharmacy, prescription mistakes, and non-adherence to prescribed regimens frequently undermine the quality of treatment delivered to home health care patients. This study is significant as it examines the underexplored yet essential function of clinical pharmacists in home health care in the Hail region. Integrating clinical pharmacists into home health care teams can optimize medication management, mitigate drug-related issues, and enhance overall patient safety and quality of life. Comprehending the influence of clinical pharmacist interventions in this particular geographical context will yield significant insights into the efficacy of these roles and guide plans to improve home health care services. The results of this study can inform the enhancement of clinical pharmacy services in home health care, resulting in improved patient outcomes and a more efficient healthcare system.

Research Limitations

The study focused on assessing the Impact of Clinical Pharmacist On Home Health Care Patients among home health care patients, from the period of 2024 to 2025 in Hail Region in KSA.

1.4. Theoretical framework and previous studies

1.4.1. Previous studies

Brata, et al. (2024) conducted a study with the objective of describing the clinical decision-making process of Indonesian pharmacists when dealing with self-medication cases related to cough. Approaches: A questionnaire with no predetermined answers, consisting of two clinical scenarios involving cough (case 1: cough caused by increasing asthma and case 2: cough as a symptom of the common cold) was created. Pharmacists were interviewed to offer suggestions and explain justifications for their suggestions for these situations. The method of content analysis was employed to analyze the statements made by the participants in the two scenarios. The number of participants who gave suitable recommendations and justifications was subsequently tallied. Outcome: The study involved a total of 245 community pharmacists. The most prevalent advice and stated rationale (40%) for cough caused by worsened asthma was to suggest a product that has been advised to alleviate the symptoms. 25% of the participants offered an appropriate suggestion, which involved directly referring the individual to medical care. This advice was supported by adequate rationale, such as identifying warning symptoms or forming a diagnosis based on the reported symptoms. Regarding cough as a symptom of the common cold, the most frequently given recommendation and stated rationale (53%) was to suggest products that alleviate the symptoms. 81% of the participants made suitable recommendations for products, supported by sound reasoning such as treating symptoms, identifying the absence of warning signs, or making a diagnosis based on symptoms. Conclusion: The competence of Indonesian community pharmacists to offer suitable advice for self-medication requests for cough depends on whether triage is necessary. Most community pharmacists lack the ability to distinguish between severe and minor diseases, which can have serious health consequences for patients. Therefore, it is necessary to implement educational interventions to enhance community pharmacists' skills in differential diagnosis for triage purposes.

Hashemlu et al. (2023) states that "Guidelines for the home care of heart failure patients facilitate safe and effective evidence-based practice." This study set out to accomplish the following goals: [1] to determine best practices for providing in-home cardiac care to adults and [2] to evaluate these recommendations for the treatment of heart failure at home and how well they address eight different aspects of this condition. We used PubMed, Web of Science, Scopus, Embase, Cochrane, and nine websites for organizations that issue guidelines to conduct a systematic review of articles published between 2000 and 2021. Patients with heart failure were given clinical guidelines that included suggestions for home care. All reports followed the standards set out by PRISMA (Preferred Reporting Items for Systematic Reviews) in 2020. Two authors independently used the Appraisal of Guidelines for Research and Evaluation-II (AGREE-II) to evaluate the quality of the included guidelines. Eight aspects of home-based heart failure care were considered when evaluating the guidelines' comprehensiveness: multidisciplinary care, continuity of treatment, optimization of treatment, patient education, involvement of both the patient and their partner, care plans with clear objectives, self-care management, and palliative care. A total of ten HF guidelines—two tailored to the nursing profession and eight more broadly—were culled from 280 research. Two guidelines—"NICE" and the "Adapting HF guideline for nursing care in home health care settings"—got the top marks after an AGREE-II quality evaluation. While some sets of recommendations covered six or seven aspects of home care, one set of five covered all eight. Home care for people with heart failure was the focus of ten recommendations drawn from this comprehensive review. Patients with heart failure (HF) can receive the best care at home according to the "NICE" recommendations and the "Adapting HF Guideline for Nursing Care in Home Health Care Settings," both of which are tailored to the needs of home healthcare nurses.

As previously mentioned by Alomi et al. (2022). Their research aims to highlight the use of clinical pharmacy in Saudi Arabian home health care services. This cross-sectional investigation looks at clinical pharmacy in Saudi Arabian home care settings. The survey gathered data on the demographics of working pharmacists, the number of patients who took pharmacotherapy lessons as part of their home healthcare, and the extent to which home healthcare pharmacies followed therapeutic standards. In order to collect data through closed-ended questions, the survey used a 5-point Likert answer scale approach. Specialists in the field and preliminary testing ensured the survey's validity. Furthermore, other tests for reliability were administered in the study, such as McDonald's α , Cronbach alpha, Gutmann's λ_2 , and Gutmann's λ_6 . Furthermore, the survey monkey method is used to analyze data from clinical pharmaceutical practice in home care. In addition, SPSS, JASP, and Excel 16 are among the most popular statistical software products. Final Product: Three hundred ninety-three pharmacists filled out the survey. With 303 responses (or 77.10%) coming from the Central area, there were clear regional differences ($p=0.000$). No statistically significant differences were identified between the two groups ($p=0.920$), but the response rate for male participants was lower than that of female participants (195 (49.74%) versus 197 (50.26%)). There were primarily two age groups represented among the respondents: age group of 24-35 (267 people, or 67.94% of the total) and age group 36-45 (121 people, or 30.79%). All age groups showed statistically significant differences ($p=0.000$). Five clinical pharmacists or more (35.14-41.89% of responders) and full-time pharmacy professionals providing home health pharmacy services make up the majority of the pharmacy home healthcare workforce. Additionally, when comparing different workforce sizes, there were

statistically significant differences in the numbers of pharmacists (30.89-52.57%) and pharmacy technicians (31.25-21.09%) ($p=0.000$). Nutritional supplements (4.50) and vitamins and minerals (4.49) make up the bulk of the medications given or prescribed to patients receiving healthcare at home. Statistically significant variances were seen across all replies ($p=0.000$), with respondents reporting increased usage of NSAIDs or painkillers (4.46), antibiotics (4.45), and other medications. Therapeutic guidelines utilized in home healthcare pharmacy services had an average score of 4.29. The component with the maximum score was "The standard considerations of urology disease therapy guidelines" with a rating of 4.44. With a score of 4.41, the section on "The standard considerations of acute and chronic kidney disease therapy among geriatric patients" was deemed satisfactory, while the section on "The concerns and management of Gastrointestinal therapeutic guidelines" was deemed passable. Nutritional assistance and vitamins were the most popular pharmaceutical courses for home healthcare services, according to the conclusion. There was a heavy reliance on the urology and nephrology therapy protocols. To better understand the role of clinical practitioners in Saudi Arabian home health care services and to identify the best home care clinical pharmacy services, additional research is necessary.

Yuliandani et al. (2022) provide an extensive examination of patient satisfaction about clinical pharmacy services and the influencing factors. A systematic literature search was performed utilizing the MEDLINE and EBSCO databases, employing the terms "patient satisfaction," "pharmacy service," "hospital pharmacy service," and "clinical pharmacy service." The criteria for articles encompass unique works, comprehensive papers, compositions authored in English, and those published between 2011 and 2021. Among 1,118 studies, 25 specifically focused on patient satisfaction with clinical pharmacy services, encompassing counseling, medication treatment monitoring, patient support programs, and pharmaceutical care. Patients often report satisfaction with clinical pharmacy services, encompassing counseling, drug therapy management, patient support programs, and pharmaceutical care. The principal factors influencing clinical pharmacy services are the quality, availability, clarity of information, and confidence in the pharmacist's proficiency. Pharmacists must get the requisite knowledge and abilities in clinical pharmacy services to improve patient well-being.

Hailu et al. (2020) assert that geriatric patients face considerable risk of Drug Related Problems (DRPs) due to multimorbidity associated with polypharmacy, age-related physiological alterations, and changes in pharmacokinetics and pharmacodynamics. These patients are often excluded from premarketing trials, perhaps increasing the occurrence of DRPs. This study aimed to detect drug-related problems and variables in geriatric patients admitted to medical and surgical wards, and to evaluate the effectiveness of clinical pharmacist interventions for treatment optimization. An interventional study was conducted on senior patients admitted to the medical and surgical wards of Jimma University Medical Center from April to July 2017. Clinical pharmacists assessed patients' pharmacotherapy, identified medication-related problems, and executed interventions. The data were analyzed using SPSS statistical software version 20.0. Descriptive statistics were performed to determine the prevalence of drug-related problems. Logistic regression analyses were used to identify the factors influencing drug-related problems. The research encompassed 200 elderly patients. The mean age of the participants was 67.3 years (SD 7.3). Approximately 82% of patients encountered at least one medication-related complication. A total of 380 drug-related incidents were identified, and 670 interventions were executed. The acceptance rate of prescribers for clinical pharmacist interventions was 91.7%. Significant factors affecting drug-related difficulties encompassed polypharmacy (adjusted odds ratio [AOR] = 4.350, 95%). Confidence Interval: 1.212–9.260, $p = 0.020$; number of comorbidities (Adjusted Odds Ratio = 1.588, 95% CI) Confidence Interval: 1.029–2.450, p -value = 0.037. Drug-related problems were markedly increased among elderly inpatients. Patients with polypharmacy and co-morbidities demonstrated a markedly increased chance of encountering drug-related disorders (DRPs). Consequently, it is essential to maintain heightened monitoring to prevent the occurrence of DRPs in these individuals. Moreover, the involvement of clinical pharmacists was demonstrated to reduce drug-related issues in geriatric inpatients. The acceptance rate of clinical pharmacists' interventions by prescribers was markedly elevated.

1.4.2. Theoretical framework

Clinical Pharmacy and Pharmaceutical Care:

Definitions of Clinical Pharmacy and Pharmaceutical Care

Clinical pharmacy is a term that has been routinely used in pharmacy practice and literature since the mid-1960s. This health specialty is defined by the 'European Society of Clinical Pharmacy' (ESCP) as the activities and services of clinical pharmacists that are designed to promote the rational and appropriate use of pharmaceuticals and medical devices by both individuals and society generally. (Al Raiisi, et al. 2019)

The application of pharmaceutical knowledge to improve therapeutic efficacy and mitigate drug-related issues is the primary objective of clinical pharmacy. The term "Clinical Pharmacy" is frequently misinterpreted and applied incorrectly. An activity that is conducted within a hospital environment is not inherently referred to as "clinical." Clinical

pharmacy incorporates all services provided by pharmacists in hospitals, community pharmacies, nursing homes, home-based care services, clinics, and any other environment where medications are prescribed, distributed, or utilized. (Zavaleta-Monestel, et al. 2023)

Clinical pharmacy concentrates on the evaluation of the effects of pharmacotherapy, medication requirements, methods of administration, and usage patterns, as well as the population and individual. The focus is redirected from the medication to the specific patient or population that is receiving the treatment. Clinical pharmacy is a relatively new field within the pharmacy sector that is founded on the fundamental principles of pharmaceutical sciences, such as pharmaceutical chemistry, biology, pharmaceutical technology, and pharmacology. The term "clinical pharmacy" is inextricably linked to the concept of pharmacological treatment. The prevalent concept of pharmacological care was articulated by C.D. Hepler and L.M. Strand in 1990, through a systems approach. Pharmaceutical care is defined as "the responsible administration of drug therapy with the objective of achieving specific outcomes that improve the quality of life of a patient." (Krzyżaniak, et al. 2019)

A patient-centered approach to pharmacy practice that is designed to improve therapeutic outcomes is referred to as pharmaceutical care. (Song et al., 2021)

Pharmaceutical Care and Clinical Pharmacy Objectives

The efficacy of pharmacotherapy is influenced not only by the appropriate selection of the active component for a particular disease but also by other significant patient- and drug-related aspects. The pathway from drug prescription to the intended therapeutic effect on the patient's health is not linear. Clinical pharmacy facilitates the judicious and accurate utilization of pharmaceuticals in routine practice and seeks evidence for optimal methodologies. Clinical pharmacy emphasizes the application of pharmaceuticals in practical settings. In contrast to traditional pharmaceutical disciplines, research has relatively limited opportunities to standardize environmental elements such as patient behavior or concurrent medication. (Paudyal, et al. 2021)

Because of this, studies in this field tend to zero in on particular facts and therapies rather than drawing broad conclusions like those in the natural sciences. Data pertinent to a drug regimen's therapeutic efficacy is collected using appropriate and continuously improved specialized methodologies and processes. Therapies are administered once these facts have been carefully described and reviewed. Once that, they are reevaluated, and the outcomes of the therapies are examined, including economic, clinical, and humanistic aspects like quality of life. As a result, studies in pharmaceutical care and clinical pharmacy fall somewhere in the middle of the hard and soft sciences. It is possible to illustrate the variety of problems that can arise during medication using the following example: The patient is not following their prescription regimen, which is causing the treatment to be ineffective. (Hicks et al., 2019) Underlying this apparent issue, there may be other causes resulting in quite distinct actions: (Garin, et al. 2021)

- The patient refrains from taking the medication due to experiencing undesirable effects.
- unable to administer the medication, for instance, he/she cannot ingest the tablet or access the container. “
- has not been adequately informed about their therapy.
- lacks motivation to adhere to it and perceives no advantages.
- is not reimbursed for this medication by the health insurance provider.”

Clinical pharmacy research aims to create and assess methodologies and protocols for analyzing issues and identifying solutions tailored to certain patient populations or medications. Pharmaceutical care in routine practice seeks to assess circumstances and identify a tailored treatment for each individual patient. (Whittlesea & Hodson 2018)

Characteristics of a Clinical Pharmacist

The ACCP asserted that this profession must embody a compassionate disposition, which, combined with extensive pharmacotherapeutic expertise, guarantees optimal patient results. Clinical pharmacists should contribute to the generation of new knowledge to enhance patients' health condition and quality of life. In 2014, the ACCP published a document delineating the requirements for clinical pharmacists. The necessity of possessing appropriate qualifications, delivering acceptable care processes, accurately documenting pharmacy-related occurrences, and collaborating with other healthcare professionals were among the stipulated requirements (ACCP, 2014). In 2017, the ACCP produced an updated list of essential competencies and skills required for clinical pharmacists to deliver high-quality comprehensive drug management. The competencies outlined below resemble those of physicians; however, the competencies for clinical pharmacists are primarily centered on pharmacotherapy (Sasseen et al., 2017).

- Direct Patient Care: Monitor and assess the patient during ward rounds and analyze the patient's medications for effectiveness, safety, and cost-effectiveness.

- **Pharmacotherapy Expertise:** Provide pharmacotherapy expertise for the appropriate selection of pharmacological therapy.
- **System-Based Care and Population Health:** Identify opportunities for enhancement to optimize care for individual patients and patient populations through the utilization of health informatics.
- **Communication:** Effectively conveying information to patients, their caregivers, and healthcare professionals, whether vocally or in writing, to ensure safe and efficient patient management.
- **Professionalism:** Consistently upholding a standard of propriety and professionalism while assuring the clarity of the delivered message.
- **Continuing Professional Development:** In addition to requisite qualifications, clinical pharmacists must partake in continuing professional development by involvement in professional organizations, delivering training to students, and educating other healthcare professionals.

Clinical Pharmacy Services and activities

In the late 1980s, the University Hospital Basel implemented the first measures to assess and implement the actions of clinical pharmacists in collaboration with the Department of Pharmacy. The Division of Clinical Pharmacology has established a local drug information center that is managed by clinical pharmacologists and pharmacists. (Almohammde, et al. 2021)

Initially, the service was exclusively accessible to in-house medical and nursing personnel. Subsequently, it was expanded to include medication information for external physicians and pharmacists. Therapeutic drug monitoring (TDM) is a critical element of clinical pharmacy practices that was established at the University Hospital Basel 25 years ago. Pharmacokinetic and pharmacodynamic analyses are integrated with the quantification of drug levels in biological fluids (particularly plasma, serum, whole blood, and saliva) in Therapeutic Drug Monitoring (TDM), which takes into account the patient's individual circumstances. (Alhameed, et al. 2019)

Consequently, TDM can be a beneficial and effective tool for the optimization and personalization of pharmacotherapy for specific medications. Additionally, TDM may be a critical element of clinical therapy, as it may reduce the probability of concentration-dependent adverse medication reactions. A successful interpretation of a drug concentration measurement that can be used to derive clinical implications necessitates the convergence of a multitude of parameters. (Firman et al., 2022a)

- A precise, accurate, and exact analytical method must be available.
- The timing of blood samples must be suitable (e.g., sampling for peak or trough levels, conclusion of the drug distribution phase).
- It is necessary to achieve steady-state concentrations.
- Patients' individual parameters, such as renal function and plasma albumin concentration, must be considered.

However, a substantial number of studies have demonstrated that erroneous drug level assessments are a common occurrence, which can lead to unnecessary expenditures and potentially flawed decisions based on these drug levels. The development of interventions that directly deliver pharmacokinetic and pharmacodynamic expertise to the patient's bedside should be facilitated by clinical pharmacy. (Firman et al., 2022b)

The Role of The Clinical Pharmacist In The Home Health Care System

Medication Management and Optimization in Home Care

Clinical pharmacists are essential in enhancing drug therapy for patients in home health care, guaranteeing that therapeutic regimens are safe and effective. This responsibility includes various functions, such as performing comprehensive medication management (CMM), an individualized approach to medication therapy that guarantees each medication has a suitable indication, is effective for the patient's condition, and is utilized safely. Clinical pharmacists evaluate patient adherence to prescription regimens and strive to mitigate potential drug-related issues (American College of Clinical Pharmacy, 2014).

An essential component of this position is medication reconciliation, wherein pharmacists assess a patient's complete medication regimen—prescription, over-the-counter, and supplements—to detect any inconsistencies that could result in adverse drug events (ADEs) (Redmond, et al., 2018). This is especially crucial in home care environments, where patients frequently possess intricate medication schedules owing to chronic ailments or polypharmacy. Research indicates that pharmacist-led medication reconciliation can markedly decrease adverse drug events and hospital readmissions (Mekonnen, McLachlan, & Brien, 2016).

Clinical pharmacists in home care settings are responsible for optimizing therapeutic outcomes by assessing drugs and implementing interventions such as dose modifications, therapeutic replacements, and medication deprescribing. Deprescribing is the methodical process of lowering or discontinuing prescriptions that may no longer be advantageous or may be harmful, particularly for elderly patients or those with several comorbidities (Zidan & Awaisu, 2024). Studies have shown that pharmacist participation in deprescribing initiatives might decrease improper medicine usage and enhance patient outcomes (Vasilevskis, et al., 2019).

A fundamental duty of clinical pharmacists in home care is to provide support for medication adherence. Suboptimal adherence poses a considerable obstacle to attaining optimal therapeutic results, prompting pharmacists to implement diverse strategies to improve adherence, such as delivering educational interventions, supplying medication adherence tools (e.g., pill organizers, electronic reminders), and advising patients on the significance of adhering to their prescribed regimens (Conn et al., 2016). Research indicates that pharmacist-led interventions significantly enhance adherence, especially among patients with chronic conditions including hypertension and diabetes (Alshehri, et al., 2020).

Ultimately, clinical pharmacists enhance patient-centered care in the home environment by customizing pharmaceutical regimens to meet specific patient requirements. This involves modifying drugs according to pharmacokinetics and pharmacodynamics in specific groups, including the elderly and individuals with renal or hepatic impairment (van den Anker, et al. 2018). Clinical pharmacists enhance health outcomes, diminish hospitalization risks, and elevate the overall quality of life for patients receiving home care services by optimizing drug therapy and assuring appropriate medication administration.

Patient Education and Counseling

In the home health care environment, clinical pharmacists are essential for patient education and counseling. This entails guaranteeing that patients and their caregivers possess a thorough comprehension of the prescribed medications, including their purpose, proper administration, possible adverse effects, and the significance of adherence. Efficient patient education mitigates the likelihood of medication errors and improves therapeutic results, particularly in the management of chronic diseases (Kini & Ho, 2018).

An essential component of this position is the transfer of medication knowledge, wherein pharmacists elucidate the therapeutic goals of each prescription and its mechanism of action in comprehensible language. Research indicates that patients who comprehend the reasoning for their drug protocols are more inclined to comply with treatment, leading to enhanced clinical results (Wilhelmsen & Eriksson 2019). Pharmacists instruct patients and caregivers on the correct administration of medications, which is essential for sophisticated drug delivery systems like inhalers, injectables, or transdermal patches (Usmani, 2019).

Alongside administration strategies, professional pharmacists underscore the significance of following to prescribed prescription regimens, a common difficulty in home health care. Adherence coaching frequently encompasses offering patients techniques to ensure regularity in medication intake, like establishing reminders, employing pill organizers, or using digital health applications (e.g., medication tracking apps). Studies indicate that pharmacist-led adherence interventions markedly enhance medication compliance, especially among older patients and individuals with chronic diseases (Wilhelmsen & Eriksson, 2019).

An essential aspect of counseling is informing patients and caregivers about probable drug side effects and their management strategies. Pharmacists furnish patients with comprehensive information regarding prevalent adverse reactions, methods for identifying severe side effects, and guidelines for when to pursue medical assistance. This facet of teaching enables patients to assume a more proactive part in their treatment, enhancing safety and compliance (Wilson, et al. 2020).

Clinical pharmacists also manage drug-drug interactions and contraindications, particularly for patients undergoing polypharmacy, where the likelihood of adverse interactions is increased. They instruct patients on the avoidance of specific over-the-counter drugs, vitamins, or foods that could disrupt their recommended treatment. This education encompasses recognizing potential obstacles to adherence, like intricate dosing schedules or budgetary limitations, and providing solutions such as streamlining the regimen or recommending economical alternatives (Clements, et al., 2018).

Furthermore, clinical pharmacists play a crucial role in customizing educational programs to meet the distinct needs of individual patients, taking into account aspects such as literacy levels, language difficulties, and cognitive capabilities. Research indicates that individualized counseling surpasses standard education in enhancing patient comprehension and compliance, particularly among heterogeneous populations (Jüngst, et al., 2019).

Clinical pharmacists promote shared decision-making through patient education and counseling, encouraging patients to actively engage in their treatment plans. This collaborative method enhances patient satisfaction and results in improved health outcomes, as patients become more confident and informed in managing their prescriptions (Parish, et al. 2022). The clinical pharmacist's role in education and counseling is essential for empowering patients in home health care systems to manage their health and drugs efficiently.

Collaborative Care and Interdisciplinary Communication

In home health care, clinical pharmacists are essential to collaborative care, collaborating with physicians, nurses, and home health aides to guarantee that patients receive thorough and coordinated treatment. Efficient interdisciplinary communication is crucial for enhancing patient outcomes, minimizing the likelihood of adverse events, and refining medication administration, especially for individuals with intricate medical requirements or chronic illnesses (Ridout, et al. 2022).

A primary duty of a clinical pharmacist in this context is to offer drug expertise that enhances the roles of other healthcare professionals. Pharmacists frequently facilitate medication management dialogues, verifying that prescribed therapies correspond with the patient's health condition, and they offer recommendations for dosage modifications, alternative therapy, or deprescribing when necessary. This necessitates close collaboration with physicians, who rely on pharmacists for their comprehensive expertise in pharmacotherapy to improve the safety and effectiveness of pharmaceutical regimens. Research indicates that interdisciplinary collaboration with pharmacists markedly decreases hospital readmissions and enhances chronic illness management outcomes (Parajuli et al., 2019).

Pharmacists interact with physicians and home health nurses to evaluate patient progress, especially in the administration and management of complex therapy, including intravenous medicines and insulin regimens. Nurses and pharmacists communicate routinely to monitor patient compliance with treatment plans, identify potential obstacles to care, and promptly address any indications of medication-related issues, such as side effects or interactions (Borza, et al., 2018).

Interdisciplinary team meetings are essential for effective collaborative treatment, with clinical pharmacists significantly contributing by analyzing patient cases, detecting medication-related problems, and offering evidence-based remedies. Pharmacists provide their knowledge in enhancing medication utilization, advising on laboratory monitoring, and aiding in the formulation of individualized care plans that correspond with the patient's health objectives and preferences. Studies have shown that integrating clinical pharmacists into care teams enhances treatment quality and patient satisfaction, as pharmacists serve as essential intermediaries between patients and the healthcare team (Bardet et al., 2015).

Additionally, clinical pharmacists enhance communication throughout transitional care, especially when patients are discharged from hospitals to home care. This procedure, also known as medication reconciliation, entails verifying that the patient's medication list is precise and current, hence mitigating the risk of medication errors during transitions across various care environments. Pharmacists engage with the comprehensive care team to validate all drugs, rectify discrepancies, and instruct both patients and caregivers regarding any alterations in therapy. Research indicates that pharmacist-led transitional care treatments markedly decrease medication inconsistencies and related hazards, resulting in improved outcomes in home health care settings (Polinski et al., 2016).

Furthermore, pharmacists educate and assist other healthcare professionals in the home health environment, imparting knowledge on pharmacotherapy advancements, medication interactions, and evidence-based protocols. This augments the team's comprehensive knowledge base and fosters safer, more efficient care. The interdisciplinary collaboration facilitated by clinical pharmacists results in a better coordinated, patient-centered approach to care, essential for attaining optimal outcomes in home health care. (Matzke et al. 2018).

2. Research Methodology

2.1. Research Design

This descriptive cross-sectional study was done to evaluate the impact of clinical pharmacists on home health care patients in the Hail region. The objective of descriptive research design is to systematically obtain information that characterizes a phenomenon, circumstance, or population. It specifically addresses the what, when, where, and how inquiries regarding the research problem, excluding the why concerns. The descriptive research method may utilize many techniques to examine the variables of interest. It predominantly utilizes quantitative data, with qualitative data being sometimes used for descriptive purposes. (Siedlecki, 2020)

2.2. Research Method

The researcher utilized a quantitative approach for this investigation, as it aligns with the objectives and purpose of the thesis. Mohajan (2020) states that quantitative research use methodologies such as experiments and surveys to gather data using specified statistical instruments. The quantitative approach use sampling techniques to collect data from existing and potential clients through online surveys, polls, questionnaires, etc., yielding results that can be quantified.

2.3. Population and sample size

A population is a clearly defined group of individuals, events, or objects from which a generalization may be made. On the other hand, a sample refers to a smaller subset of the population that is observed in a research study (Balakrishnan et al, 2017).

The study included (112) home health care patients in Hail Region, in KSA.

2.4. Sampling Technique

Sampling is the act of selecting a enough number of instances from a certain population to make inferences about the entire population. This involves choosing the sample population, the sampling frame, the sampling method, the sample size, and the sample selection procedure.

Sampling from a community of interest offers several benefits, including cost reduction, time and effort preservation for participants, and faster access to data. Conversely, a small sample size can negatively impact the results. Rahman (2023) The participants in this study are selected using a method called simple random sampling, which helps to provide a representative sample for the study.

2.5. Data Collection

This research employed both primary and secondary sources to acquire data, thereby guaranteeing a thorough examination of the research topic. Secondary data will be employed to contextualize the study and provide a foundational understanding by reviewing existing literature, including published books and academic articles. This method not only enhances the research framework but also assists in the identification of deficiencies in the current knowledge base (Hair et al., 2019). Conversely, participants will be directly interviewed via a meticulously crafted questionnaire to obtain primary data. This method, as emphasized by Pandey and Pandey (2021), enables the acquisition of specific, pertinent information that secondary data alone is unable to provide. The questionnaire will be employed to collect both quantitative and qualitative data, thereby guaranteeing that the responses are in direct alignment with the research objectives. The utilization of a well-structured questionnaire, which is indispensable for the acquisition of dependable data, will enable a comprehensive analysis and effectively address the research questions (Kent, 2020). The validity and depth of the research findings will be improved by utilizing a combination of primary and secondary data.

2.6. Data Analysis

Peck, et al. (2020) define "data analysis" as the systematic process of extracting meaning from data through the identification of patterns and the drawing of judgments. The process is characterized as both creative and thrilling, but it has also been described as untidy, ambiguous, and time-consuming. Data science encompasses the whole process of evaluating, analyzing, and conceptualizing data to derive findings regarding the interconnections among various data kinds. This process is non-linear. It appears that data analysis requires the use of logical reasoning in the research process.

The data collected from the questionnaire analyzed using statistical analysis techniques performed with the SPSS application.

3. Results

3.1. Demographic Questions

3.1.1. Age

The table shows that the majority of respondents (48.2%) are over 50 years old, indicating that most of the sample consists of older individuals. The smallest group is aged between 10 and 20 years (9.8%), suggesting lower engagement

from younger participants. Overall, the distribution reflects a predominance of older age groups, with some variation across other age categories.

Table 1 Age

Age	Frequency	Percent	Valid Percent	Cumulative Percent
• 10- 20 years	11	9.8	9.8	9.8
• 20-30 years	9	10	10	17.9
• 30-40 years	15	13.4	13.4	31.3
• 40-50 years	15	13.4	13.4	44.6
• More than 50 years	54	48.2	48.2	92.9
• under 10	8	7.1	7.1	100.0
Total	112	100.0	100.0	

3.1.2. Gender

The table reveals an equal distribution between females and males, with 50% for each. This balanced representation between genders suggests that the sample is not biased toward one gender, providing a more balanced perspective in the data.

Table 2 Gender

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
• Female	59	50	50	50
• Male	56	50.0	50.0	100.0
Total	112	100.0	100.0	

3.1.3. Nationality

Table 3 Nationality

Nationality	Frequency	Percent	Valid Percent	Cumulative Percent
• Non- Saudi	21	18.7	18.7	18.7
• Saudi	91	81.3	81.3	100.0
Total	112	100.0	100.0	

The majority of the respondents are Saudi nationals (81.3%), while 18.7% are non-Saudi. This distribution indicates a significant local focus in the sample, with limited representation of other nationalities, reflecting the demographic makeup of the population being studied.

3.1.4. Employment Status

The participants are spread across different employment statuses, with the largest group being employed (29.5%), followed closely by retirees (28.6%) and unemployed individuals (25%). Students make up the smallest portion (17%). This variety in employment status represents a broad range of societal groups in terms of their professional and educational backgrounds.

Table 4 Employment Status

Employment Status	Frequency	Percent	Valid Percent	Cumulative Percent
• Employed	33	29.5	29.5	29.5
• Retired	32	28.6	28.6	58.0
• Student	19	17.0	17.0	75.0
• Unemployed	28	25.0	25.0	100.0
Total	112	100.0	100.0	

3.1.5. Health Condition

The table indicates that the majority of participants (61.6%) suffer from chronic illnesses, such as diabetes and hypertension, while 16.1% have acute illnesses, and 22.3% are in post-surgical care. This distribution shows that home care is primarily utilized by individuals with chronic health conditions.

Table 5 Health Condition

Health Condition	Frequency	Percent	Valid Percent	Cumulative Percent
• Acute illness	18	16.1	16.1	16.1
• Chronic illness (e.g., diabetes, hypertension)	69	61.6	61.6	77.7
• Post-surgical care	25	22.3	22.3	100.0
Total	112	100.0	100.0	

3.1.6. Duration of Home Care

The largest proportion of participants (53.6%) have been receiving home care for over a year, while 32.1% have been receiving care for less than six months. This suggests that a significant number of respondents rely on long-term home care.

Table 6 Duration of Home Care

Duration of Home Care	Frequency	Percent	Valid Percent	Cumulative Percent
• 6 months - 1 year	16	14.3	14.3	14.3
• Less than 6 months	36	32.1	32.1	46.4
• Over 1 year	60	53.6	53.6	100.0
Total	112	100.0	100.0	

3.1.7. Primary Caregiver

Table 7 Primary Caregiver

Primary Caregiver	Frequency	Percent	Valid Percent	Cumulative Percent
• Family member	51	45.5	45.5	45.5
• Professional caregiver	8	7.1	7.1	52.7
• Self-care	53	47.3	47.3	100.0
Total	112	100.0	100.0	

According to the table, the majority of participants either provide self-care (47.3%) or are cared for by family members (45.5%). Only a small portion (7.1%) rely on professional caregivers, highlighting a reliance on either self-care or familial support for home care.

3.1.8. *The Communication between the clinical pharmacist and patient:*

- **Statement:** “Communication channels between the clinical pharmacist and patients remain open for addressing queries” ranked first with a mean of 1.96 and a standard deviation of 0.874. Therefore, the direction of the responses from the study sample is **Agree**.
- **Statement:** “Patients are promptly informed of any modifications to their treatment plans” came in second with a mean of 1.96 and a standard deviation of 0.810. Therefore, the direction of the responses of the study sample is **Agree**.
- **Statement:** “The clinical pharmacist communicates effectively with the patient by employing language that is readily comprehensible to the patient” ranked third with a mean of 1.85 and a standard deviation of 0.738. Therefore, the direction of the responses of the study sample is **Agree**.
- **Statement:** “During consultations, patients are consistently provided with succinct and lucid explanations of medication usage” came in fourth with a mean of 1.83 and a standard deviation of 0.721. Therefore, the direction of the responses of the study sample is **Agree**.
- **Statement:** “The pharmacist’s communication is distinguished by its clarity and comprehensiveness, which reduces the likelihood of misunderstandings” ranked fifth with a mean of 1.81 and a standard deviation of 0.729. Therefore, the direction of the responses of the study sample is **Agree**.

the attitude of the sample members toward the communication between the clinical pharmacist and patients was **Agree**, with an overall mean of 1.8804 and a standard deviation of 0.66058. This indicates a positive perception of the pharmacist-patient communication practices.

Table 8 The Communication between the clinical pharmacist and patient

Descriptive Statistics	Mean	Std. Deviation	Direction	Arrangement
During consultations, patients are consistently provided with succinct and lucid explanations of medication usage.	1.83	0.721	Agree	4
The clinical pharmacist communicates effectively with the patient by employing language that is readily comprehensible to the patient.	1.85	0.738	Agree	3
Communication channels between the clinical pharmacist and patients remain open for addressing queries.	1.96	0.874	Agree	1
Patients are promptly informed of any modifications to their treatment plans..	1.96	0.810	Agree	2
The pharmacist's communication is distinguished by its clarity and comprehensiveness, which reduces the likelihood of misunderstandings.	1.81	0.729	Agree	5
The Communication between the clinical pharmacist and patient	1.8804	.66058	Agree	

3.1.9. *The clinical pharmacist's approach to medication Management:*

- **Statement:** “The clinical pharmacist coordinates with the patient’s health care providers regarding medication plans to ensure comprehensive care” ranked first with a mean of 2.07 and a standard deviation of 0.824. Therefore, the direction of the responses from the study sample is **Agree**.
- **Statement:** “Comprehensive medication reviews are conducted regularly to assess efficacy and address any concerns related to treatment” came in second with a mean of 2.01 and a standard deviation of 0.811. Therefore, the direction of the responses of the study sample is **Agree**.
- **Statement:** “The pharmacist makes recommendations regarding medication adjustments based on the patient’s health condition and response to treatment” ranked third with a mean of 1.96 and a standard deviation of 0.676. Therefore, the direction of the responses of the study sample is **Agree**.

- **Statement:** “Continual surveillance of the pharmaceutical regimen is carried out to verify its efficacy” came in fourth with a mean of 1.96 and a standard deviation of 0.740. Therefore, the direction of the responses of the study sample is **Agree**.
- **Statement:** “Medication regimens are meticulously structured to avoid any instances of missing doses or mistakes” ranked fifth with a mean of 1.92 and a standard deviation of 0.784. Therefore, the direction of the responses of the study sample is **Agree**.

The attitude of the sample members towards the clinical pharmacist's approach to medication management was **Agree**, with an overall mean of 1.9821 and a standard deviation of 0.60779. This indicates a generally positive perception of the pharmacist's management of medication regimens.

Table 9 The clinical pharmacist's approach to medication Management

	Descriptive Statistics	Mean	Std. Deviation	Direction	Arrangement
1.	Medication regimens are meticulously structured to avoid any instances of missing doses or mistakes.	1.92	0.784	Agree	5
2.	Continual surveillance of the pharmaceutical regimen is carried out to verify its efficacy.	1.96	0.740	Agree	4
3.	The pharmacist makes recommendations regarding medication adjustments based on the patient's health condition and response to treatment.	1.96	0.676	Agree	3
4.	Comprehensive medication reviews are conducted regularly to assess efficacy and address any concerns related to treatment.	2.01	0.811	Agree	2
5.	The clinical pharmacist coordinates with the patient's health care providers regarding medication plans to ensure comprehensive care.	2.07	0.824	Agree	1
	The clinical pharmacist's approach to medication Management	1.9821	.60779	Agree	

3.1.10. The clinical pharmacist's approach to patient education:

- Statement: “The clinical pharmacist offers drug interaction information to help patients avoid potential risks” ranked first with a mean of 2.03 and a standard deviation of 0.864. Therefore, the direction of the responses from the study sample is **Agree**.
- Statement: “The clinical pharmacist's education provides clarification on how to handle missed doses” came in second with a mean of 1.94 and a standard deviation of 0.809. Therefore, the direction of the responses of the study sample is **Agree**.
- Statement: “Educational sessions effectively empower patients to manage their treatment independently” ranked third with a mean of 1.89 and a standard deviation of 0.775. Therefore, the direction of the responses of the study sample is **Agree**.
- Statement: “Patients are provided with tailored advice to improve self-management of their conditions” came in fourth with a mean of 1.79 and a standard deviation of 0.673. Therefore, the direction of the responses of the study sample is **Agree**.
- Statement: “Comprehensive education about medication purposes and potential side effects is consistently delivered” ranked fifth with a mean of 1.79 and a standard deviation of 0.632. Therefore, the direction of the responses of the study sample is **Agree**.

The attitude of the sample members towards the clinical pharmacist's approach to patient education was **Agree**, with an overall mean of 1.8893 and a standard deviation of 0.65421. This indicates a positive perception of the pharmacist's effectiveness in educating patients about their medications and self-management strategies.

Table 10 The clinical pharmacist's approach to patient education

	Descriptive Statistics	Mean	Std. Deviation	Direction	Arrangement
1.	Comprehensive education about medication purposes and potential side effects is consistently delivered.	1.79	0.632	Agree	5
2.	Patients are provided with tailored advice to improve self-management of their conditions.	1.79	0.673	Agree	4
3.	The clinical pharmacist offers drug interaction information to help patients avoid potential risks.	2.03	0.864	Agree	1
4.	The clinical pharmacist's education provides clarification on how to handle missed doses.	1.94	0.809	Agree	2
5.	Educational sessions effectively empower patients to manage their treatment independently.	1.89	0.775	Agree	3
	The clinical pharmacist's approach to patient education	1.8893	0.65421	Agree	

3.1.11. The health outcomes achieved by the intervention of the clinical pharmacist:

- **Statement:** “The pharmacist's involvement in medication management has led to a reduction in hospital admissions” ranked first with a mean of 2.04 and a standard deviation of 0.740. Therefore, the direction of the responses from the study sample is **Agree**.
- **Statement:** “Clinical interventions made by the pharmacist have contributed to measurable improvements in patient health” came in second with a mean of 2.03 and a standard deviation of 0.729. Therefore, the direction of the responses of the study sample is **Agree**.
- **Statement:** “The clinical pharmacist has played a key role in preventing medication-related complications” ranked third with a mean of 2.01 and a standard deviation of 0.741. Therefore, the direction of the responses of the study sample is **Agree**.
- **Statement:** “The collaboration between the pharmacist and other healthcare providers has been linked to better patient outcomes” came in fourth with a mean of 1.99 and a standard deviation of 0.664. Therefore, the direction of the responses of the study sample is **Agree**.
- **Statement:** “The implementation of health monitoring and subsequent follow-up by the pharmacist has led to enhanced treatment outcomes” ranked fifth with a mean of 1.99 and a standard deviation of 0.741. Therefore, the direction of the responses of the study sample is **Agree**.

The attitude of the sample members towards the health outcomes achieved by the intervention of the clinical pharmacist was **Agree**, with an overall mean of 2.0125 and a standard deviation of 0.62517. This reflects a generally positive perception of the pharmacist's role in improving patient health outcomes through various interventions and collaborative efforts.

Table 11 The health outcomes achieved by the intervention of the clinical pharmacist

	Descriptive Statistics	Mean	Std. Deviation	Direction	Arrangement
1.	Clinical interventions made by the pharmacist have contributed to measurable improvements in patient health.	2.03	0.729	Agree	2
2.	The pharmacist's involvement in medication management has led to a reduction in hospital admissions.	2.04	0.740	Agree	1
3.	The implementation of health monitoring and subsequent follow-up by the pharmacist has led to enhanced treatment outcomes.	1.99	0.741	Agree	5
4.	The collaboration between the pharmacist and other healthcare providers has been linked to better patient outcomes.	1.99	0.664	Agree	4

5.	The clinical pharmacist has played a key role in preventing medication-related complications.	2.01	0.741	Agree	3
	The health outcomes achieved by the intervention of the clinical pharmacist	2.0125	0.62517	Agree	

3.1.12. *The medical pharmacist's availability and accessibility to the patient:*

- **Statement:** “The clinical pharmacist is accessible via multiple channels (e.g., phone, email, social media), ensuring timely responses to patient inquiries” ranked first with a mean of 2.22 and a standard deviation of 0.850. Therefore, the direction of the responses from the study sample is **Agree**.
- **Statement:** “Timely follow-ups are conducted by the clinical pharmacist when needed” came in second with a mean of 2.19 and a standard deviation of 0.811. Therefore, the direction of the responses from the study sample is **Agree**.
- **Statement:** “The pharmacist provides reliable access for discussing complex medication issues outside of standard visits” ranked third with a mean of 2.15 and a standard deviation of 0.819. Therefore, the direction of the responses from the study sample is **Agree**.
- **Statement:** “Urgent medication-related concerns are promptly addressed by the pharmacist” came in fourth with a mean of 2.13 and a standard deviation of 0.753. Therefore, the direction of the responses from the study sample is **Agree**.
- **Statement:** “Flexible scheduling options are available to accommodate consultations when required” ranked fifth with a mean of 2.12 and a standard deviation of 0.744. Therefore, the direction of the responses from the study sample is **Agree**.

The attitude of the sample members towards the clinical pharmacist's availability and accessibility to the patient was **Agree**, with an overall mean of 2.1652 and a standard deviation of 0.66193. This indicates that the participants view the pharmacist as generally accessible and responsive, ensuring timely and flexible communication for patient care.

Table 12 The medical pharmacist's availability and accessibility to the patient

	Descriptive Statistics	Mean	Std. Deviation	Direction	Arrangement
1.	The clinical pharmacist is accessible via multiple channels (e.g., phone, email, social media), ensuring timely responses to patient inquiries.	2.22	0.850	Agree	1
2.	Timely follow-ups are conducted by the clinical pharmacist when needed.	2.19	0.811	Agree	2
3.	Flexible scheduling options are available to accommodate consultations when required.	2.12	0.744	Agree	5
4.	Urgent medication-related concerns are promptly addressed by the pharmacist.	2.13	0.753	Agree	4
5.	The pharmacist provides reliable access for discussing complex medication issues outside of standard visits.	2.15	0.819	Agree	3
	The medical pharmacist's availability and accessibility to the patient	2.1652	0.66193	Agree	

3.1.13. *Coordination with other home care teams:*

- **Statement:** “The pharmacist is instrumental in maintaining the continuity of care during transitions, including the discharge of patients from the hospital or the referral of patients to specialists” ranked first with a mean of 2.18 and a standard deviation of 0.774. Therefore, the direction of the responses from the study sample is **Agree**.
- **Statement:** “Regular communication between the pharmacist and healthcare teams has reduced treatment conflicts” came in second with a mean of 2.17 and a standard deviation of 0.781. Therefore, the direction of the responses from the study sample is **Agree**.

- **Statement:** “The pharmacist's coordination efforts facilitate the alignment of the medication regimens prescribed by various specialists” ranked third with a mean of 2.07 and a standard deviation of 0.681. Therefore, the direction of the responses from the study sample is **Agree**.
- **Statement:** “Updates on medication changes and health progress are seamlessly shared across the patient’s healthcare team” came in fourth with a mean of 2.05 and a standard deviation of 0.708. Therefore, the direction of the responses from the study sample is **Agree**.
- **Statement:** “Effective collaboration between the clinical pharmacist and other healthcare professionals ensures a unified care plan” ranked fifth with a mean of 2.01 and a standard deviation of 0.741. Therefore, the direction of the responses from the study sample is **Agree**.

The attitude of the sample members towards the pharmacist's coordination with other home care teams was **Agree**, with an overall mean of 2.0781 and a standard deviation of 0.60033. This reflects a positive view of the pharmacist's role in facilitating effective communication and coordination among healthcare professionals to ensure cohesive and continuous patient care.

Table 13 Coordination with other home care teams

	Descriptive Statistics	Mean	Std. Deviation	Direction	Arrangement
1.	Effective collaboration between the clinical pharmacist and other healthcare professionals ensures a unified care plan.	2.01	0.741	Agree	5
2.	Regular communication between the pharmacist and healthcare teams has reduced treatment conflicts.	2.17	0.781	Agree	2
3.	The pharmacist is instrumental in maintaining the continuity of care during transitions, including the discharge of patients from the hospital or the referral of patients to specialists.	2.18	0.774	Agree	1
4.	Updates on medication changes and health progress are seamlessly shared across the patient’s healthcare team.	2.05	0.708	Agree	4
5.	The pharmacist's coordination efforts facilitate the alignment of the medication regimens prescribed by various specialists.	2.07	0.681	Agree	3
	Coordination with other home care teams	2.0781	0.60033	Agree	

4. Conclusion

The results of the study on the impact of clinical pharmacists on home health care patients in the Hail region underscore their crucial role in enhancing patient care and outcomes. The analysis reveals several key findings:

- Clinical pharmacists are perceived to be highly effective in managing medication regimens and ensuring accessibility. The majority of respondents agreed that clinical pharmacists provide timely responses to patient inquiries and conduct thorough medication reviews. This high level of accessibility and structured medication management contributes significantly to avoiding mistakes and ensuring the efficacy of treatments.
- The study shows that clinical pharmacists deliver comprehensive education on medication purposes, potential side effects, and self-management. This education empowers patients to handle their treatment regimens independently, thereby improving their ability to manage chronic conditions effectively. The clarity and effectiveness of this education are crucial in enhancing patient understanding and compliance.
- The findings highlight the importance of the pharmacist's role in coordinating with other healthcare providers. Effective collaboration ensures that care plans are unified and that medication regimens prescribed by various specialists are aligned. This coordination helps prevent treatment conflicts and facilitates seamless transitions in care, such as patient discharge or referrals to specialists.
- Clinical interventions by pharmacists have been linked to measurable improvements in patient health and a reduction in hospital admissions. The study indicates that pharmacists play a pivotal role in preventing

medication-related complications and enhancing overall treatment outcomes. Their involvement is crucial in maintaining continuity of care and addressing urgent medication concerns promptly.

The study demonstrates that clinical pharmacists in the Hail region are making a significant positive impact on home health care patients. Their roles in medication management, patient education, and coordination with healthcare teams are essential for improving patient outcomes and ensuring effective care. The continued support and integration of clinical pharmacists into home health care practices are recommended to sustain and further enhance these benefits.

Recommendations

Based on the results of the study on the impact of clinical pharmacists on home health care patients in the Hail region, the following recommendations are proposed:

- Invest in ongoing training and professional development for clinical pharmacists to keep them updated on the latest advancements in medication management and patient care.
- Improve and expand communication channels between clinical pharmacists and patients to include more interactive platforms, such as mobile apps and telehealth services.
- Develop and implement more comprehensive patient education programs tailored to individual needs, focusing on medication purposes, side effects, and self-management strategies.
- Foster stronger collaboration between clinical pharmacists and other healthcare providers through regular interdisciplinary meetings and integrated care plans.
- Increase the availability of flexible scheduling options for consultations and follow-ups to accommodate patients' needs and preferences.
- Implement regular assessments and evaluations of the clinical pharmacist's impact on patient care, including patient satisfaction surveys and health outcome metrics.

Provide adequate resources and support for clinical pharmacists, including access to advanced tools and technology that aid in medication management and patient care

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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